

ATTACHMENT - REMARKS

By this Amendment, independent claims 17, 27, 28 and 44 have been amended for clarity and to better conform with US practice. Other dependent claims have also been amended consistent with the changes to their independent claim and/or for clarity. In addition, the withdrawn claims have been variously amended for clarity and to better conform to US practice, since such claims should be examined together with the remaining claims as noted below. It is submitted that the present application is in condition for allowance for the following reasons.

Turning first, for convenience, to the objections in the Detailed Action, in the *Drawings* section the drawings were objected to for not showing a doping unit as recited in claim 51 or a minute sample obtaining unit as recited in claim 21. By this Amendment, claims 21 and 51 have been revised to delete reference to the noted units, and hence to overcome this drawings objection.

In the following *Specification* section, the specification was objected to for failing to discuss the doping unit of claim 51. However, as noted above, claim 51 no longer recites a doping unit, so that this objection to the specification is thus overcome.

Turning now to the initial *Election/Restrictions* section of the Detailed Action, the examiner continued and made final over applicant's traversal the restriction requirement of claims 17-28 and 44-57, so that claims 1-16 and 29-43 are now withdrawn. In support of the finality of the restriction over applicant's traverse, the examiner noted for the first time (and without use this time of Kakibayashi et al., which had been the sole basis for the initial restriction requirement) a number of journal articles which were

alleged to disclose the common technical features of the present invention, which the examiner stated were those features recited in independent claim 17.

This restriction requirement utilizes references which were also used in the subsequent art rejections of the claims, which art rejections were as follows:

- 1) independent claims 17, 27, 28 and 44, together with dependent claims 18-21, 23-25, 45-48, 50, 54 and 56-57 were rejected under 35 USC § 102 as being anticipated by Galiotis et al. (1999).
- 2) independent claim 44 was rejected under 35 USC § 102 as being anticipated by Schlichting et al. (2000).
- 3) dependent claims 22 and 49 were rejected under 35 USC § 103 as being obvious over Galiotis et al. (1999) in view of Xu et al.
- 4) dependent claim 26 was rejected under 35 USC § 103 as being obvious over Galiotis et al. (1999) in view of Kakibayashi et al.
- 5) dependent claim 51 was rejected under 35 USC § 103 as being obvious over Galiotis et al. (1999) in view of Schlichting et al. (2000).
- 6) dependent claims 52 and 53 were rejected under 35 USC § 103 as being obvious over Schlichting et al. (2000) in view of Amano et al.
- 7) dependent claim 55 was rejected under 35 USC § 103 as being obvious over Galiotis et al. (1999).

As the disclosures of all of these restriction references are relevant to both the withdrawal of the restriction requirement and the art rejections, the following discussions apply to both issues.

Initially, it will be noted that all of the references noted by the Examiner for the restriction, as will be discussed below, describe a principle of operation different from the principle of stress measurement described in the invention of the subject application and in particular in claim 17 (containing the common technical features). Therefore, all of the restriction references cannot constitute a basis for denying novelty and non-obviousness of the invention of the subject application, or for supporting a restriction requirement consistent with PCT Rule 13. It appears just from the recitations provided by the examiner in the *Election/Restrictions* section of the Action that the Examiner has not correctly understood the fundamental differences between the principle of stress measurement in the present application and the principles described in the restriction references used to support the restriction, and hence as well in the course of novelty and obviousness examination of the present application and claims.

In particular, the references noted by the Examiner to support the restriction, Schlichting et al. (2000), Muraki et al. (2001), Yoshikawa et al. (1995), Muraki et al. (1997), Galiotis et al. (1999), and Pezzotti (1999), are all related to Raman spectroscopy using laser light (as the examiner specifically notes). However, as readily appreciated by those of less than ordinary skill in the art, the use of irradiating laser light is fundamentally **different** from the claimed invention reciting the use of an irradiating electron beam.

As reference to the journal articles themselves additionally demonstrate, the Raman spectroscopy described in each of the restriction references is used for carrying out a measurement by irradiating light that is a laser light, while the invention of the subject application is for carrying out a measurement by irradiating electron beams, and

in particular which is not a beam of light. Accordingly, each of the restriction noted references uses photoluminescence, a different principal of operation from that of the claimed invention which uses electroluminescence.

Moreover, it must be appreciated that stress measurement using Raman spectroscopy as used in each of the restriction references is inferior in position resolution and has a large beam spot diameter of laser light when irradiating laser light onto a specimen, and the position resolution cannot be less than 200nm – as was extensively discussed in the present specification. Therefore, a local stress measurement in the specimen cannot be carried out using laser light. The stress measurement using Raman spectroscopy also has a fatal drawback in that a minute change in stress cannot be measured because of low stress sensitivity – as also detailed in the present specification.

On the other hand, a stress measurement according to the claimed invention enables a high degree of position resolution of a few nanometers, which is much smaller than 200nm. This stress measurement is made, not by irradiating with light such as laser light, but by irradiating with electron beams; and in addition stress measurement according to the claimed invention has high stress sensitivity. Accordingly, the stress measurement according to the claimed invention allows accurately carrying out a local stress measurement in a specimen. In short, the invention of the subject application differs in the fundamental principle of stress measurement from the restriction references, and the invention of the subject application has excellent effects as compared to those of the restriction references, as mentioned above. Accordingly, the invention of the subject application has novelty over

all of the restriction references, and in particular Galiotis et al. (1999) and Schlichting et al. (2000) which were specifically used in the art rejections; and additionally the restriction requirement should now be withdrawn so that all pending claims are now examined.

As noted above, the above facts are discussed in detail in the present application, see the BACKGROUND ART section and the DISCLOSURE OF THE INVENTION section. The Examiner is requested to reread these paragraphs if there is need to thoroughly understand the difference between the stress measurement using electron beams of the claimed invention and the conventional stress measurement according to Raman spectroscopy using laser light such as set forth in the noted references.

The Examiner has also mentioned that the invention of the subject application does not satisfy the non-obviousness requirement for patentability. However, as mentioned above, the above-mentioned noted references including Schlichting et al. and Galiotis et al., etc., all utilize a principle different from that of the invention of the claimed invention, and are also all recognized to have a significant difference in effects. Therefore, it is apparent that the claimed invention is neither disclosed nor made obvious by these noted references so that independent claims 17, 27, 28 and 44, together with dependent claims 18-21, 23-25, 45-48, 50, and 54-57 are neither anticipated nor made obvious by Galiotis et al.; and additionally that independent claim 44 and dependent claim 55 are neither anticipated nor made obvious by Schlichting et al.

In addition, the Examiner has cited, as other references used in combination for denying non-obviousness of the subject application, Xu et al. (US PATENT Appl. No. 09/ 749,948), Kakibayashi et al. (US PATENT Appl. No. 5,278,408), and Amamo et al. (US PATENT Appl. No. 4,774,150). However, these references include no effective disclosure for the invention of the subject application.

First, Xu et al. does relate to stress measurement, but utilizes the intensity of light, and thus clearly differs in the principle of stress measurement from the claimed invention that utilizes a spectrum shift. The main cited reference Galiotis et al. uses Raman spectroscopy which, as noted above, is fundamentally different from that of an electron beam claimed for the invention. Thus, it is apparent that Claims 22 and 49 of the subject application have non-obviousness over the suggested cited combination of references.

Next, Kakibayashi et al. is an invention relating to 3-DIMENSIONAL ATOMIC ARRANGEMENT OBSERVATION, and not an invention relating to stress measurement like the claimed invention of the subject application. The Examiner has also pointed out that Kakibayashi et al. uses a scanning electron microscope (SEM) and applied the same to Galiotis et al. to thereby deny non-obviousness of the invention. However, since Galiotis et al. uses Raman spectroscopy which different from that of the claimed invention, such an idea itself of adopting a scanning electron microscope for Galiotis et al. is completely unobvious and of no utility as the functioning of the primary reference would be destroyed. Moreover, it has not at all been disclosed in either of these cited references to carry out a stress measurement based on a spectrum shift resulting from electron beam irradiation as fundamentally claimed. More specifically, non-obviousness

of the claimed invention should be judged based on whether or not the whole of a stress measurement of the claimed invention has been disclosed in the cited references, and it is improper to judge non-obviousness of the invention of the subject application by an awkward combination of inventions that are completely different in principle and object, and without motivation or utility. Thus, dependent claim 26 is also allowable for this additional reason.

Further, the Examiner has denied patentability of the claimed invention according to claims 52 and 53 by citing Amano et al. for combination with Schlichting et al., as mentioned above. However, Amano et al. is an invention relating to COATING, which is completely different from stress measurement of the invention of the subject application; and Schlichting et al. uses Raman spectroscopy different from that of the present invention which uses an electron beam. Therefore, the non-obviousness of the invention of claims 52-53 should not be denied even by the combination of these cited references.

For all of the foregoing reasons, it is submitted that the present application is in condition for allowance and such action is solicited.

Respectfully submitted,

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